

# **CONTAMINATION AT PATRICK HENRY HIGH GASOLINE IN THE BALL FIELD**

## ***SUMMARY***

Late in 2003, petroleum contamination was discovered at Patrick Henry High School in its northeast corner softball field. The source of the contamination was a former Union 76 service station, whose underground storage tanks (USTs) had been removed the previous year. The former station was east of the school across Park Ridge Boulevard and at an elevation about 30 feet higher than the ball field. Gasoline products delivered under pressure through leaky pipes during the station's years of operation polluted a groundwater aquifer. Contamination flowed west under the boulevard and seeped out near the eastern slope-bank that borders the athletic field.

The 2011/2012 San Diego County Grand Jury received a complaint with questions about petroleum removal, current levels of contamination, and possible long-term health issues. This led to an investigation by the Grand Jury. Recommendations include continuation of current clean-up practices, monitored by the San Diego County Department of Environmental Health (DEH). Also, DEH should present an approximate timetable for completion of full removal.

## ***INTRODUCTION***

Patrick Henry High School campus is located south of Navajo Road and west of Park Ridge Boulevard near Lake Murray in northeastern San Diego. The school opened its campus in 1968 at 6702 Wandermere Drive, San Diego, CA.

Late in 2003, school maintenance staff detected petroleum odors in the soil of the school's northeast athletic field during repair of a broken irrigation pipe. The source was a former gasoline station located across Park Ridge Boulevard, where the underground storage tanks (USTs) had been removed in 2002. Citizen concerns were raised and soon resulted in media attention. Clean-up started in 2004. Intensity of monitoring and abatement effort increased over time as the scope of contamination was revealed. Local concern centered on potential health risks. Petroleum removal continues to this day.

## ***PROCEDURE***

Responding to a citizen complaint, the Grand Jury reviewed documented evidence and conducted interviews. The Jury's objectives were to establish a detailed time-line of events and to determine: How much contamination has been removed? What amount remains at Patrick Henry High? What have been the overall health risks?

Grand Jury members visited the school and gas station sites late in October 2011. Jurors interviewed a remediation worker who was conducting a weekly review of the monitoring and mitigation equipment onsite at the former service station. Also interviewed were experts from a soils engineering firm, and the County's Department of Environmental Health (DEH).

## ***DISCUSSION***

The Union 76 service station northeast of Patrick Henry High School (PHHS), across Park Ridge Boulevard, closed in 2002. The station had operated since the 1960s. Throughout this time, the Conoco-Phillips Corporation owned the site. Mid-year of 2002 Conoco-Phillips removed the underground storage tanks and soil sampling detected contamination. County DEH opened a Local Oversight Program Case, # H13250-002. Subsequently, DEH ordered installation of four groundwater monitoring wells at the service station site.

A clean-up firm detected contamination at the PHHS northeast softball field the following year, 2003. Levels increased during the next eighteen months. Shallow puddles appeared in the athletic field from time to time. These gave off a petroleum smell and in some instances had been ignited by tossed, lighted matches. Such findings prompted DEH to order decontamination of the school site in May 2004.

A work plan proposed by the decontamination firm utilizing Best Management Practices addressed several objectives:

- (1) More monitoring and extraction wells at the former station in addition to selected spots in the underground "plume" area under the boulevard and the softball field.
- (2) Evaluate Dual-Phase Extraction (DPE) after which a suitable system could be installed. DPE is a high-vacuum process that removes both liquid and vaporous contamination from deep in the soil.
- (3) Hydrocarbon migration reduction with injection of ozone deep into the plume area. Ozone is an oxidizer; as such it neutralizes gasoline contamination by direct conversion into carbon-dioxide and water. Ozone also increases the dissolved oxygen content in groundwater. This enhances biodegradation of hydrocarbons, which indirectly reduces contamination.
- (4) Excavation and removal of contaminated soil at the athletic field.
- (5) Sampling of the school's associated French drain system to verify whether contamination had entered the storm drains.

Work began in 2005. A decontamination firm installed ten groundwater monitoring wells in May. The firm installed seven ozone injection wells in June. These were distributed throughout the plume area, including the graded slopes within the PHHS property. Late in the summer they excavated approximately 66 cubic yards (six to seven large dump trucks full) of contaminated soil from the slopes for offsite disposal. Dewatering (similar to using water well pumps) also removed about 1,000 gallons of water. No contamination was found in the school's French drain.

In 2006, the firm installed an additional monitoring well drilled into Navajo Road. An additional site assessment concluded continued groundwater monitoring was needed. The report also confirmed the removal measures must continue. Soil vapor extraction had commenced at the end of May. Ozone injection began late in October. Early in 2007, the firm installed a groundwater pump and treatment system. This allowed processing for large quantities of groundwater.

DEH approved additional testing during February and March of 2008. Because of contamination concerns, temporary fencing was installed to enclose the entire field. Late in the year Conoco-Phillips installed permanent chain link fencing at request of the school.

In July 2009 the firm updated their report and completed further sampling. They also issued a new action plan. The newly proposed work included the following:

- Two concrete-lined trenches at the north and east slopes of the field.
- Thirteen additional ozone injection points in Park Ridge Boulevard.
- Deepen existing extraction wells in Park Ridge Boulevard.
- Expand the water treatment system at the former Union 76 station.

In September 2009 DEH ordered two permanent, groundwater monitoring wells installed on the school property between the Park Ridge Boulevard extraction wells and the two concrete trenches noted.

On October 27, 2009, the decontamination firm issued its interim health risk assessment. They concluded there appeared to be no significant risk to health and safety to the public at the PHHS softball field under current conditions. Restricting access to the slope areas was no longer necessary. Once installed, the trenches at the slope base would sufficiently reduce groundwater discharge to the field. Finally, periodic groundwater analyses were no longer necessary.

The next several months saw plans developed, approved, and implemented for the above mentioned work. By mid-year 2010, aquifer testing showed the trenches would be adequate to control the contamination. In late summer 2010 a group expressed interest in

using the former Union 76 station building for an auto repair shop. This triggered a human health assessment for the property. In late 2010 and early 2011, the decontamination firm installed soil gas probes at the former station. Vapor sampling began. In August their Onsite Human Risk Assessment Report concluded there was no significant health risk from petroleum vapor in the former 76 Station building.

Also in August 2011 a summary report described results of mitigation efforts since May/June 2006. Soil Vapor Extraction (SVE) had operated nearly continuously during this time. It had recovered 109,039 pounds (over 50 tons) of hydrocarbons, which is roughly the amount contained in two full tanker truckloads of gasoline. Similarly, the Groundwater Pump and Treatment (GPT) system had treated some 857,136 gallons of groundwater. This is about the volume contained in 60 backyard swimming pools. Ozone injection had operated in conjunction during this period.

Later in 2011 the decontamination firm reported the underground extent of the plume from the station had been sufficiently identified. At this point DEH concluded no additional equipment or enhanced assessment was warranted.

Despite extensive documentation of onsite conditions, both surface and subsurface, detailed human exposure data were elusive. The decontamination firm presented the most complete health risk assessment to DEH in its October 2009 interim health risk assessment report. It reviewed contamination of both cancer-producing and non-cancer-producing petroleum. This study presumed a maximum, worst case, exposure of six years at the school as a student then followed by 19 years of exposure as an adult employee – a total period of 25 years. Overall, the report concluded that health risk was negligible.

Members of the public participated in public meetings throughout the process of contamination discovery, investigation, and ongoing remediation. Most concerns were adequately resolved. The extensively documented decontamination work coupled with the detailed assessments of DEH gained their appropriate respect.

### ***FACTS AND FINDINGS***

***Fact:*** The San Diego County DEH ordered initial clean-up at the former service station in 2002 at the time of the underground storage tanks removal.

***Fact:*** Late in 2003 significant petroleum contamination was discovered at the Patrick Henry High School northeast athletic field.

***Fact:*** DEH ordered abatement measures for the former Union 76 station underground spillage in 2004.

**Fact:** During subsequent years many tons of hydrocarbons have been removed from the underground “plume” area of the gasoline contamination.

**Fact:** Hundreds of thousands of gallons of contaminated water have been processed during the same period.

**Finding 01:** Effective abatement efforts overseen by DEH have been underway for many years.

**Fact:** Petroleum contamination removal at PHHS continues to this day.

**Fact:** Documented evidence shows progressive reduction of contamination levels.

**Finding 02:** Completion of decontamination efforts including a final health risk assessment would benefit the PHHS community.

**Finding 03:** PHHS as well as other interested parties would welcome a projected end-date for decontamination activities and return to full use of the school’s athletic field.

### ***RECOMMENDATIONS***

**The 2011/2012 San Diego County Grand Jury recommends the San Diego County Board of Supervisors direct the Department of Environmental Health (DEH) as follows:**

- 12-21: Continue its ongoing oversight of petroleum de-contamination at the Patrick Henry High School (PHHS) northeast athletic field.**
- 12-22: Finalize the overall health risk assessment for the PHHS site that was begun in 2009.**
- 12-23: Develop a best estimate completion-date of abatement work after which the PHHS field may be returned to full use.**

### ***REQUIREMENTS AND INSTRUCTIONS***

The California Penal Code §933(c) requires any public agency which the Grand Jury has reviewed, and about which it has issued a final report, to comment to the Presiding Judge of the Superior Court on the findings and recommendations pertaining to matters under the control of the agency. Such comment shall be made *no later than 90 days* after the Grand Jury publishes its report (filed with the Clerk of the Court); except that in the case of a report containing findings and recommendations pertaining to a department or agency headed by an elected County official (e.g. District Attorney, Sheriff, etc.), such

comment shall be made *within 60 days* to the Presiding Judge with an information copy sent to the Board of Supervisors.

Furthermore, California Penal Code §933.05(a), (b), (c), details, as follows, the manner in which such comment(s) are to be made:

- (a) As to each grand jury finding, the responding person or entity shall indicate one of the following:
  - (1) The respondent agrees with the finding
  - (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.
- (b) As to each grand jury recommendation, the responding person or entity shall report one of the following actions:
  - (1) The recommendation has been implemented, with a summary regarding the implemented action.
  - (2) The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
  - (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This time frame shall not exceed six months from the date of publication of the grand jury report.
  - (4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefor.
- (c) If a finding or recommendation of the grand jury addresses budgetary or personnel matters of a county agency or department headed by an elected officer, both the agency or department head and the Board of Supervisors shall respond if requested by the grand jury, but the response of the Board of Supervisors shall address only those budgetary or personnel matters over which it has some decision making authority. The response of the elected agency or department head shall address all aspects of the findings or recommendations affecting his or her agency or department.

Comments to the Presiding Judge of the Superior Court in compliance with the Penal Code §933.05 are required from the:

<b><u>Responding Agency</u></b>	<b><u>Recommendations</u></b>	<b><u>Date</u></b>
San Diego County Board of Supervisors	12-21 to 12-23	7/30/12